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SEQUENCE LISTING

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<110> Idaho Research Foundation, Inc.

<120> METHODS FOR REDUCING SOMATIC CELL COUNT IN MILK

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<140> New Filing

<141> 2006-07-06

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<151> 2005-01-07

<150> US 60/535,454

<151> 2004-01-08

<160> 19

<170> PatentIn version 3.3

<210> 1

<211> 18

<212> PRT

<213> Staphylococcus aureus

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Thr Cys

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tgctattttt catccaaaga taatgtaggt aaagttacag gtggcaaaac ttgt

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<213> Artificial

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Cys Tyr Phe Ser Ser Lys Asp Asn Ala Gly Gly Lys Thr Cys  
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 <223> xaa can be any naturally occurring amino acid

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Phe	Thr	Gly	Leu	Met	Glu	Asn	Met	Lys	Val	Leu	Tyr	Asp	Asp	His	Tyr
			20					25					30		
Val	Ser	Ala	Thr	Lys	Val	Lys	Ser	Val	Asp	Lys	Phe	Leu	Ala	His	Asp
		35					40					45			
Leu	Ile	Tyr	Asn	Ile	Ser	Asp	Lys	Lys	Leu	Lys	Asn	Tyr	Asp	Lys	Val
	50					55					60				
Lys	Thr	Glu	Leu	Leu	Asn	Glu	Gly	Leu	Ala	Lys	Lys	Tyr	Lys	Asp	Glu
65					70				75						80
Val	Val	Asp	Val	Tyr	Gly	Ser	Asn	Tyr	Tyr	Val	Asn	Cys	Tyr	Phe	Ser
				85					90					95	
Ser	Lys	Asp	Asn	Val	Gly	Lys	Val	Thr	Gly	Gly	Lys	Thr	Cys	Met	Tyr
			100					105					110		
Gly	Gly	Ile	Thr	Lys	His	Glu	Gly	Asn	His	Phe	Asp	Asn	Gly	Asn	Leu
		115					120					125			
Gln	Asn	Val	Leu	Ile	Arg	Val	Tyr	Glu	Asn	Lys	Arg	Asn	Thr	Ile	Ser
	130					135					140				
Phe	Glu	Val	Gln	Thr	Asp	Lys	Lys	Ser	Val	Thr	Ala	Gln	Glu	Leu	Asp
145					150					155					160
Ile	Lys	Ala	Arg	Asn	Phe	Leu	Ile	Asn	Lys	Lys	Asn	Leu	Tyr	Glu	Phe
				165					170					175	
Asn	Ser	Ser	Pro	Tyr	Glu	Thr	Gly	Tyr	Ile	Lys	Phe	Ile	Glu	Asn	Asn
			180					185					190		
Gly	Asn	Thr	Phe	Trp	Tyr	Asp	Met	Met	Pro	Ala	Pro	Gly	Asp	Lys	Phe
		195					200					205			
Asp	Gln	Ser	Lys	Tyr	Leu	Met	Met	Tyr	Asn	Asp	Asn	Lys	Thr	Val	Asp
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Ser Lys Ser Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
 225 230 235 240

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Glu Ser Gln Pro Asp Pro Thr Pro Asp Glu Leu His Lys Ser Ser Glu  
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Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr  
 20 25 30

Val Ser Ala Thr Lys Val Met Ser Val Asp Lys Phe Leu Ala His Asp  
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu  
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser  
 85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr  
 100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
 115 120 125

Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
 130 135 140

Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
 145 150 155 160

Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
 165 170 175

Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn  
 180 185 190

Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
195 200 205

Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp  
210 215 220

Ser Lys Ser Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
225 230 235 240

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<400> 11

Glu Ser Gln Pro Asp Pro Met Pro Asp Asp Leu His Lys Ser Ser Glu  
1 5 10 15

Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr  
20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu  
65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser  
85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr  
100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
115 120 125

Gln Asn Val Leu Val Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
130 135 140

Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
145 150 155 160

Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
165 170 175

Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn  
180 185 190

Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
195 200 205

Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp  
210 215 220

Ser Lys Ser Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
225 230 235 240

<210> 12  
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Glu Ser Gln Pro Asp Pro Met Pro Asp Asp Leu His Lys Ser Ser Glu  
1 5 10 15

Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr  
20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
35 40 45

Leu Ile Tyr Asn Ile Asn Asp Lys Lys Leu Asn Asn Tyr Asp Lys Val  
50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Asn Lys Tyr Lys Asp Glu  
65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser  
85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Ser Gly Lys Thr Cys Met Tyr  
100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
Page 6

115                      120                      125  
 Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
 130                      135                      140  
 Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
 145                      150                      155                      160  
 Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
 165                      170                      175  
 Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Ser Asn  
 180                      185                      190  
 Gly Asn Thr Phe Trp Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
 195                      200                      205  
 Asp Gln Ser Lys Tyr Leu Met Ile Tyr Lys Asp Asn Lys Met Val Asp  
 210                      215                      220  
 Ser Lys Ser Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
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 Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr  
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 Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
 35                      40                      45  
 Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
 50                      55                      60  
 Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu  
 65                      70                      75                      80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser  
                     85                                    90                                    95  
 Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr  
                     100                                    105                                    110  
 Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
                     115                                    120                                    125  
 Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
                     130                                    135                                    140  
 Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
                     145                                    150                                    155                                    160  
 Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
                     165                                    170                                    175  
 Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn  
                     180                                    185                                    190  
 Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
                     195                                    200                                    205  
 Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp  
                     210                                    215                                    220  
 Ser Lys Arg Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
                     225                                    230                                    235                                    240

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 Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr  
                     20                                    25                                    30  
 Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
                     35                                    40                                    45



Leu Ile Tyr Asn Ile Ser Asp Lys Arg Leu Lys Asn Tyr Asp Lys Val  
 50 55 60  
 Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu  
 65 70 75 80  
 Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser  
 85 90 95  
 Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr  
 100 105 110  
 Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
 115 120 125  
 Gln Asn Val Leu Val Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
 130 135 140  
 Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
 145 150 155 160  
 Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
 165 170 175  
 Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn  
 180 185 190  
 Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
 195 200 205  
 Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp  
 210 215 220  
 Ser Lys Arg Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
 225 230 235 240

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<400> 15

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Phe Thr Gly Leu Met Glu Asn Met Lys Val Leu Tyr Asp Asp Arg Tyr  
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Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
35 40 45  
Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
50 55 60  
Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu  
65 70 75 80  
Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Phe  
85 90 95  
Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr  
100 105 110  
Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
115 120 125  
Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
130 135 140  
Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
145 150 155 160  
Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
165 170 175  
Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn  
180 185 190  
Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
195 200 205  
Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp  
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Ser Lys Arg Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
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<400> 16

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 20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu  
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Cys Phe Phe  
 85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr  
 100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
 115 120 125

Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
 130 135 140

Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
 145 150 155 160

Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
 165 170 175

Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn  
 180 185 190

Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
 195 200 205

Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp  
 210 215 220

Ser Lys Arg Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
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225 230 235 240

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<400> 17

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 20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Gly Leu Ala Lys Lys Tyr Lys Asp Glu  
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Cys Gly Lys  
 85 90 95

Thr Cys Met Tyr Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp  
 100 105 110

Asn Gly Asn Leu Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg  
 115 120 125

Asn Thr Ile Ser Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala  
 130 135 140

Gln Glu Leu Asp Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn  
 145 150 155 160

Leu Tyr Glu Phe Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe  
 165 170 175

Ile Glu Asn Asn Gly Asn Thr Phe Trp Tyr Asp Met Met Pro Ala Pro  
 Page 12

180

185

190

Gly Asp Lys Phe Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn  
 195 200 205

Lys Thr Val Asp Ser Lys Ser Val Lys Ile Glu Val His Leu Thr Thr  
 210 215 220

Lys Asn Gly Xaa  
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<400> 18

Glu Ser Gln Pro Asp Pro Thr Pro Asp Glu Leu His Lys Ala Ser Lys  
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Phe Thr Gly Leu Met Glu Asn Met Lys Val Leu Tyr Asp Asp His Tyr  
 20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Gly Leu Ala Lys Lys Tyr Lys Asp Glu  
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser  
 85 90 95

Ser Gly Lys Thr Cys Met Tyr Gly Gly Ile Thr Lys His Glu Gly Asn  
 100 105 110

His Phe Asp Asn Gly Asn Leu Gln Asn Val Leu Ile Arg Val Tyr Glu  
 115 120 125

Asn Lys Arg Asn Thr Ile Ser Phe Glu Val Gln Thr Asp Lys Lys Ser  
 Page 13

130

135

140

Val Thr Ala Gln Glu Leu Asp Ile Lys Ala Arg Asn Phe Leu Ile Asn  
 145 150 155 160

Lys Lys Asn Leu Tyr Glu Phe Asn Ser Ser Pro Tyr Glu Thr Gly Tyr  
 165 170 175

Ile Lys Phe Ile Glu Asn Asn Gly Asn Thr Phe Trp Tyr Asp Met Met  
 180 185 190

Pro Ala Pro Gly Asp Lys Phe Asp Gln Ser Lys Tyr Leu Met Met Tyr  
 195 200 205

Asn Asp Asn Lys Thr Val Asp Ser Lys Ser Val Lys Ile Glu Val His  
 210 215 220

Leu Thr Thr Lys Asn Gly Xaa  
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<400> 19

Glu Ser Gln Pro Asp Pro Thr Pro Asp Glu Leu His Lys Ala Ser Lys  
 1 5 10 15

Phe Thr Gly Leu Met Glu Asn Met Lys Val Leu Tyr Asp Asp His Tyr  
 20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Gly Leu Ala Lys Lys Tyr Lys Asp Glu  
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser  
 Page 14

85

90

95

Ser Lys Asp Asn Ala Gly Gly Lys Thr Cys Met Tyr Gly Gly Ile Thr  
 100 105 110

Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu Gln Asn Val Leu  
 115 120 125

Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser Phe Glu Val Gln  
 130 135 140

Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp Ile Lys Ala Arg  
 145 150 155 160

Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe Asn Ser Ser Pro  
 165 170 175

Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn Gly Asn Thr Phe  
 180 185 190

Trp Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe Asp Gln Ser Lys  
 195 200 205

Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp Ser Lys Ser Val  
 210 215 220

Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
 225 230 235